

## **APPENDIX C – ECOLOGICAL STUDIES**

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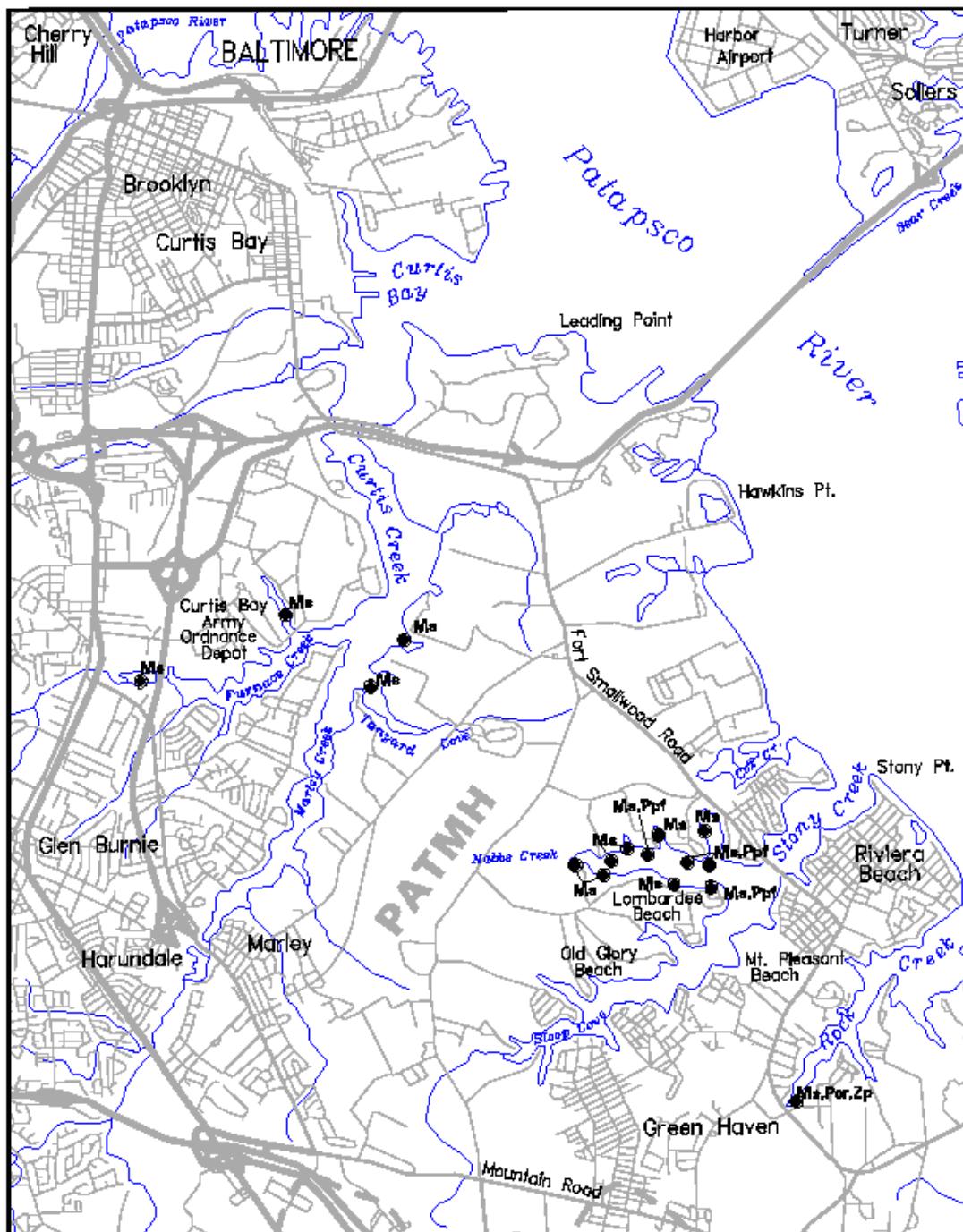
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ATTACHMENT A Submerged Aquatic Vegetation Sampling Results Memo

ATTACHMENT B Baltimore Harbor Fisheries Studies Presentation (2003 – 2005)

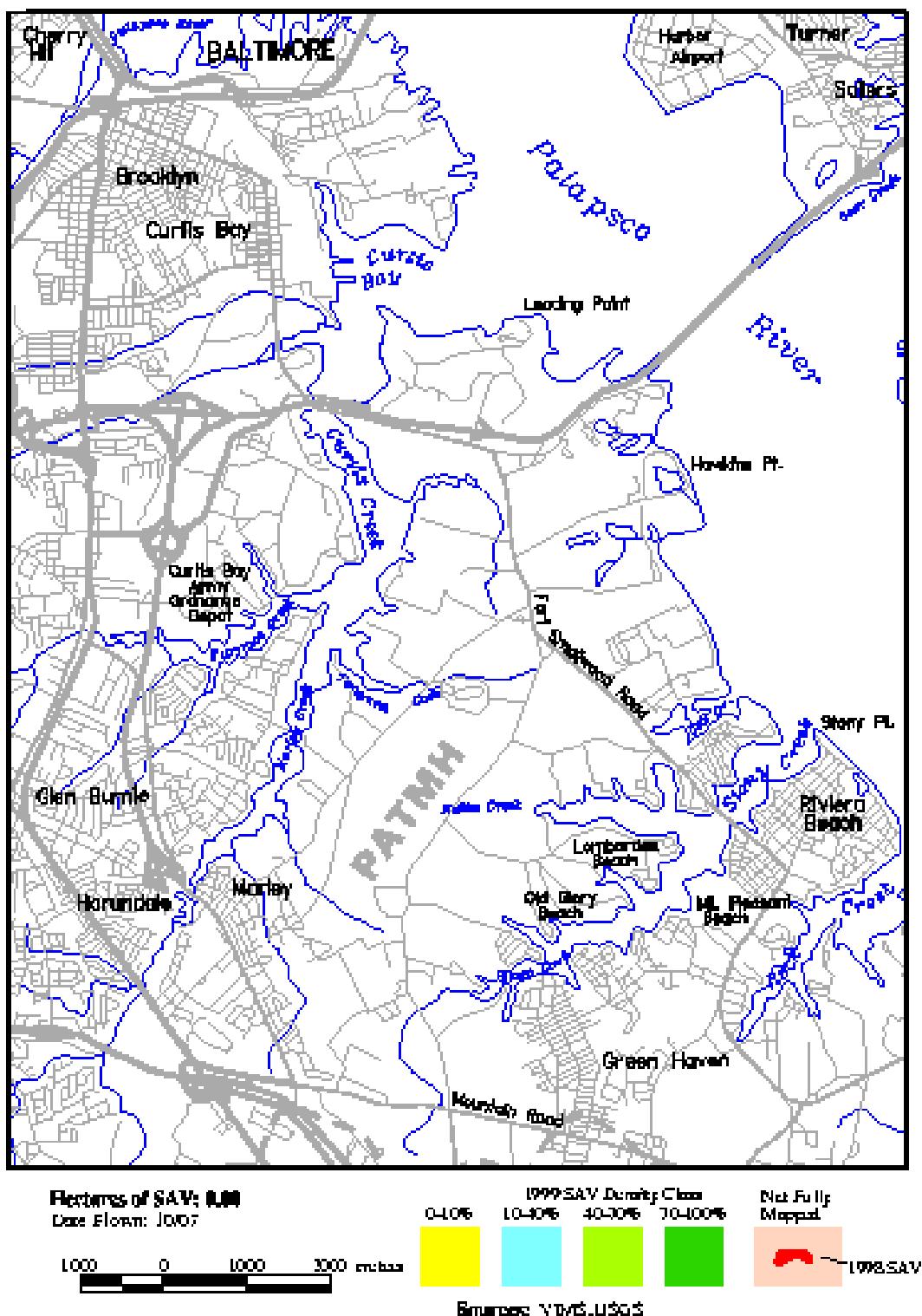
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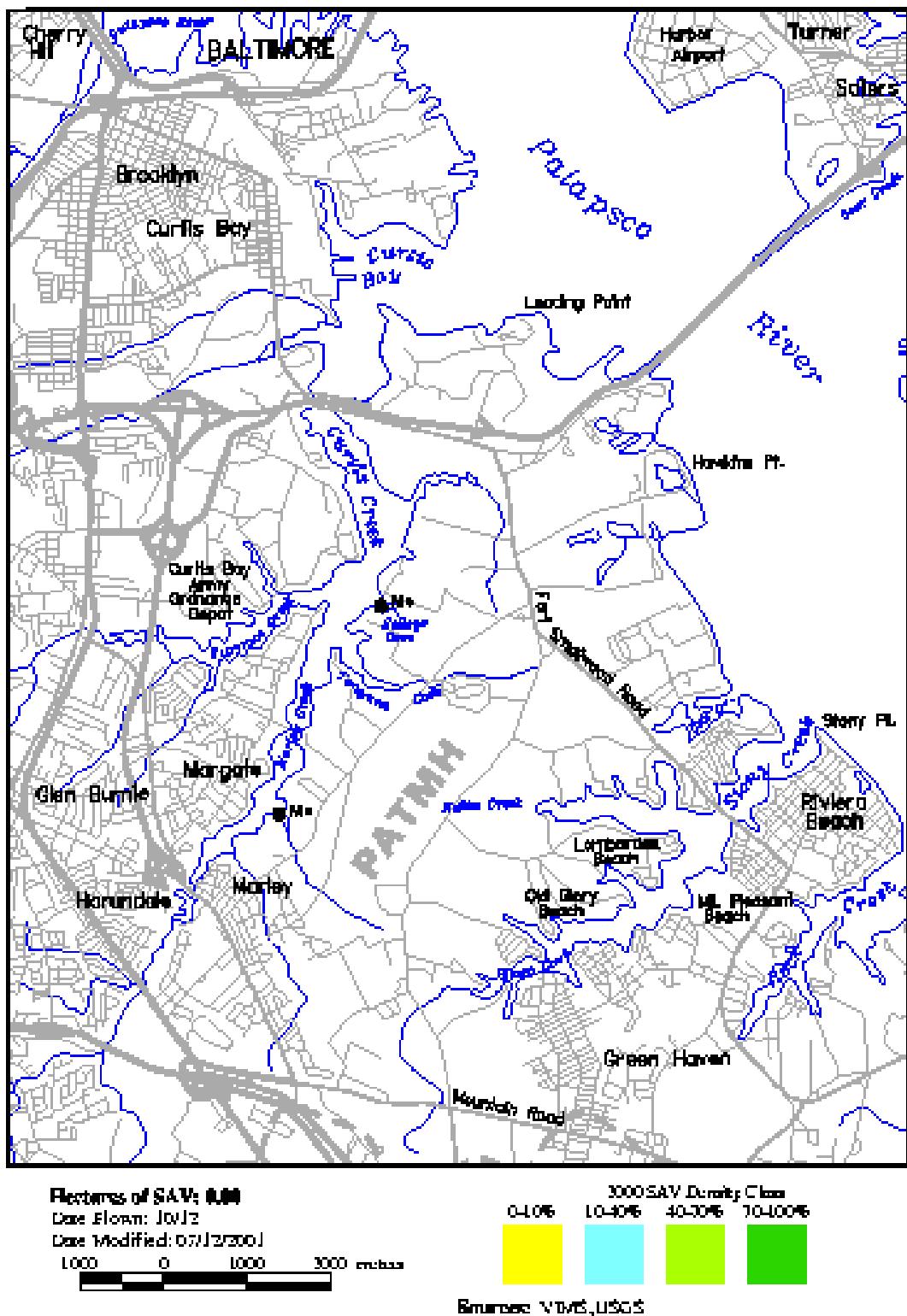
**Hectares of SAV: 0.00**  
Date Flown: 08/04  
1000 0 1000 2000 meters

**Sources:** School of Marine Science  
Virginia Institute of Marine Science  
College of William and Mary  
U.S. Geological Survey

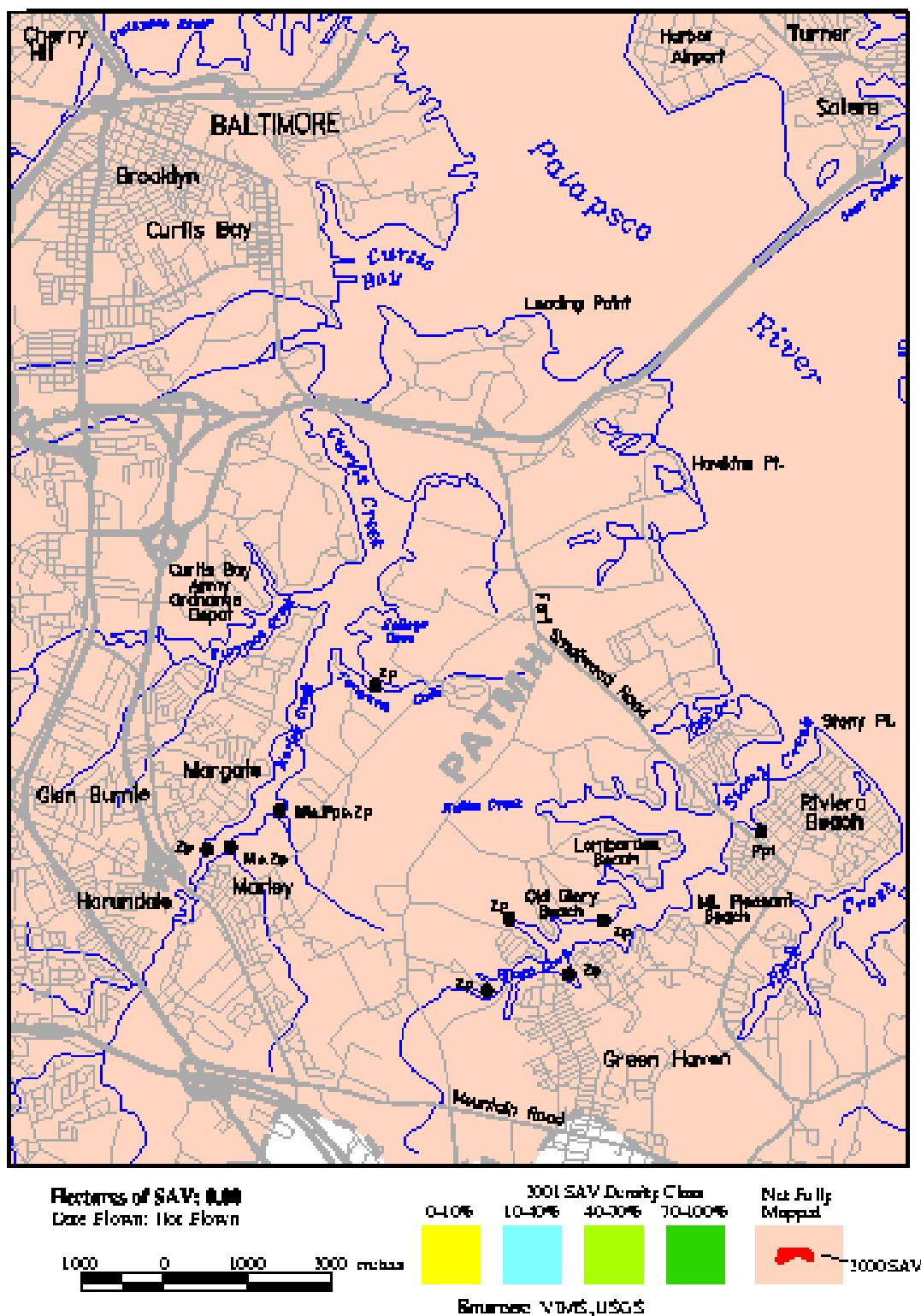
**Figure C-1. 1998 Submerged Aquatic Vegetation, Curtis Bay, MD**  
(Downloaded from VIMS website; Masonville along upper edge of figure)



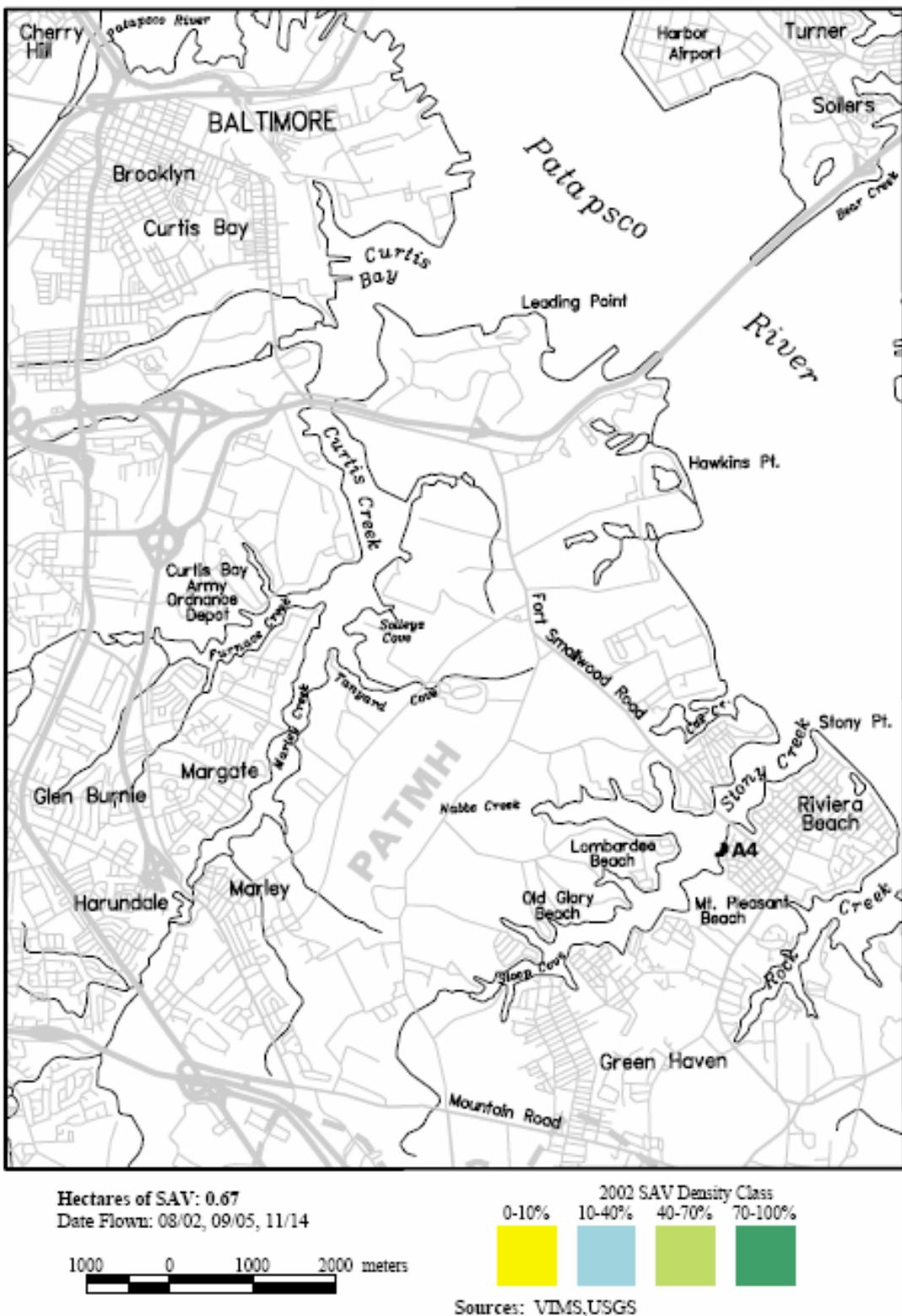
**Figure C-2. 1999 Submerged Aquatic Vegetation, Curtis Bay, MD**  
(Downloaded from VIMS website; Masonville along upper edge of figure)



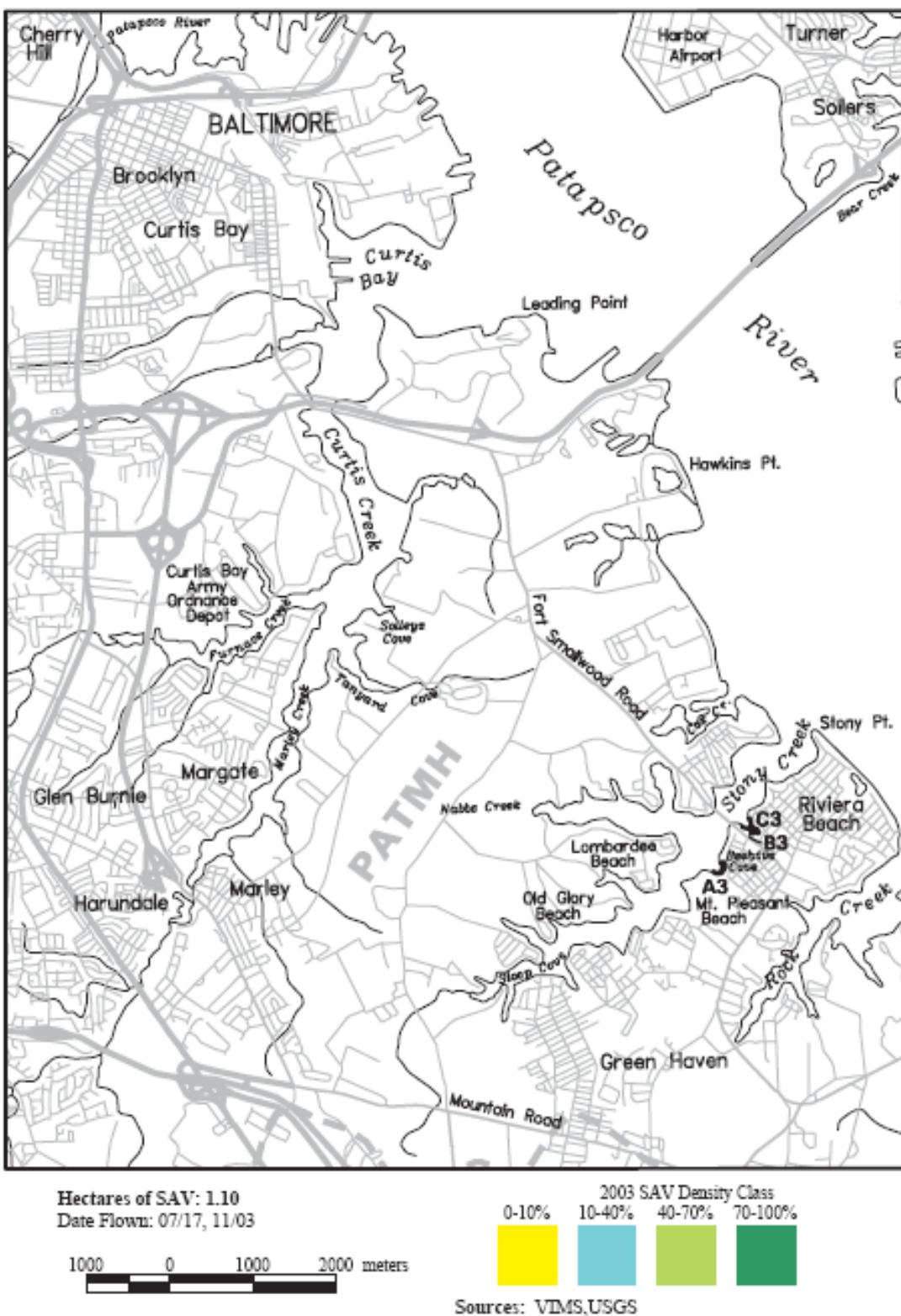
**Figure C-3. 2000 Submerged Aquatic Vegetation, Curtis Bay, MD**  
(Downloaded from VIMS website; Masonville along upper edge of figure)



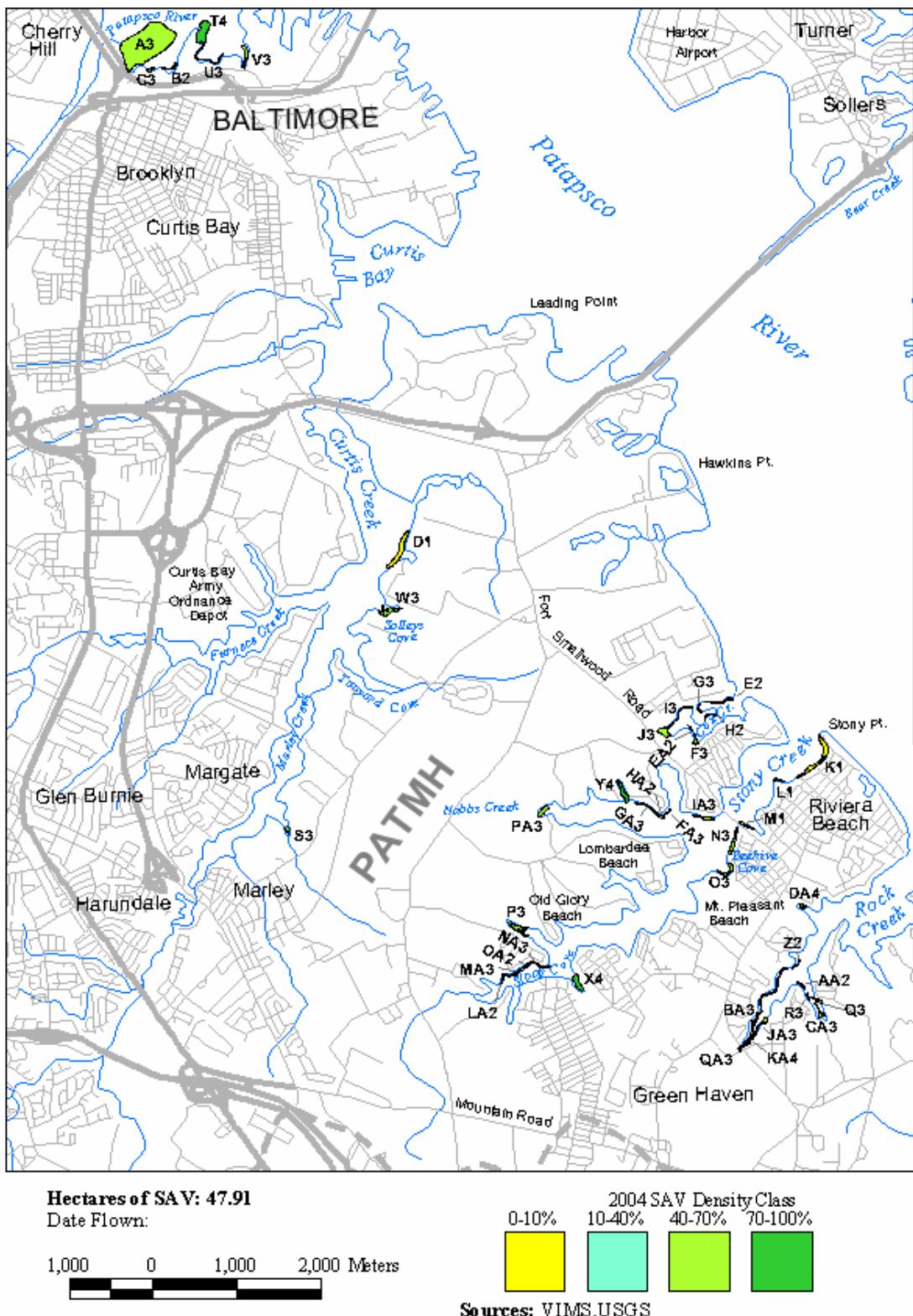
**Figure C-4. 2001 Submerged Aquatic Vegetation, Curtis Bay, MD**  
(Downloaded from VIMS website; Masonville along upper edge of figure)



**Figure C-5. 2002 Submerged Aquatic Vegetation, Curtis Bay, MD**  
(Downloaded from VIMS website; Masonville along upper edge of figure)



**Figure C-6. 2003 Submersed Aquatic Vegetation, Curtis Bay, MD**  
(Downloaded from VIMS website; Masonville along upper edge of figure)



**Figure C-7. 2004 Submerged Aquatic Vegetation, Curtis Bay, MD**  
 (Downloaded from VIMS website; Masonville along upper edge of figure)

**TABLE C-1. SUMMARY OF THE COMPOSITION AND ABUNDANCE OF FISHERIES COLLECTIONS AT THOMS COVE, BP-FAIRFIELD, SOLLERS POINT, WET BASIN, AND KURT IRON STATIONS, BALTIMORE HARBOR (AUGUST 2005)**  
**MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HABOR, MARYLAND**

COMMON NAME	SCIENTIFIC NAME	THOMS COVE				BP-FAIRFIELD		SOLLERS POINT				WET BASIN		KURT IRON	
		GILLNET		SEINE		SEINE		GILLNET		SEINE		GILLNET		GILLNET	
		TC-G1A	TC-G1B	TC-S1	TC-S2	BP-S1	BP-S2	SP-G1A	SP-G1B	SP-S1	SP-S2	WB-G1	WB-G2	KI-G1	KI-G2
Hickory Shad	<i>Alosa mediocris</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Atlantic Menhaden	<i>Brevoortia tyrannus</i>	153	115	5	312	0	0	13	8	0	0	21	4	13	35
Weakfish	<i>Cynoscion regalis</i>	0	4	0	0	0	0	0	0	0	0	0	0	0	0
Gizzard Shad	<i>Dorosoma cepedianum</i>	5	6	0	0	0	0	22	9	0	0	2	0	2	0
Herring		0	0	7	0	0	0	0	0	0	0	0	0	0	0
Banded Killifish	<i>Fundulus diaphanus</i>	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Striped Killifish	<i>Fundulus majalis</i>	0	0	1	0	2	3	0	0	0	0	0	0	0	0
Channel Catfish	<i>Ictalurus punctatus</i>	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Spot	<i>Leiostomus xanthurus</i>	67	97	1	0	0	0	122	234	0	0	131	198	114	147
Striped Bass	<i>Morone saxatilis</i>	9	23	4	1	6	5	7	2	3	0	6	9	3	1
White Perch	<i>Morone americana</i>	45	92	64	6	67	42	54	18	14	1	8	26	28	20
Inland Silverside	<i>Menidia beryllina</i>	0	0	12	10	0	0	0	0	0	0	0	0	0	0
Atlantic Silverside	<i>Menidia menidia</i>	0	0	157	182	245	15	0	0	36	12	0	0	0	0
Summer Flounder	<i>Paralichthys dentatus</i>	0	1	0	0	0	0	0	1	0	0	0	0	0	0
Yellow Perch	<i>Perca flavescens</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Bluefish	<i>Pomatomus saltatrix</i>	13	4	0	0	0	0	0	3	0	0	3	1	1	1
Blue Crab	<i>Callinectes sapidus</i>	16	3	0	0	0	0	20	6	0	0	1	1	0	1
<b>TOTAL ABUNDANCE</b>		<b>308</b>	<b>345</b>	<b>252</b>	<b>511</b>	<b>320</b>	<b>65</b>	<b>239</b>	<b>281</b>	<b>53</b>	<b>13</b>	<b>172</b>	<b>240</b>	<b>161</b>	<b>207</b>
<b>TOTAL NUMBER OF SPECIES</b>		<b>7</b>	<b>9</b>	<b>9</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>7</b>	<b>8</b>	<b>3</b>	<b>2</b>	<b>7</b>	<b>7</b>	<b>6</b>	<b>8</b>

**TABLE C-2. FISH SPECIES CAUGHT BY SEASON, EQUIPMENT, AND STATION AT MASONVILLE FROM 2003 THROUGH 2005**  
**MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND**

FAMILY	SCIENTIFIC NAME	COMMON NAME	YEAR 2003			SPRING 2004			FALL 2004			SPRING 2005			SUMMER 2005								
			STATION			SEINE	GILLNET	TRAWL	SEINE	GILLNET	TRAWL	SEINE	GILLNET	TRAWL	SEINE	GILLNET	GILLNET	GILLNET	GILLNET	GILLNET			
			M-S1	M-G1	M-G2	M-T1	M-T2	M-S1	M-G1	M-G2	M-T1	M-T2	M-S1	M-G1	M-G2	M-T1	M-T2	WB-G1	KI-G1	WB-G1	WB-G2	KI-G1	KI-G2
Anguillidae	<i>Anguilla rostrata</i>	American Eel	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Engraulidae	<i>Anchoa mitchilli</i>	Bay Anchovy	--	--	--	--	--	--	--	--	8	--	658	--	--	--	--	--	--	--	--	--	
Clupeidae	<i>Alosa aestivalis</i>	Blueback Herring	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Clupeidae	<i>Alosa mediocris</i>	Hickory Shad	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	
Clupeidae	<i>Alosa pseudoharengus</i>	Alewife	--	--	--	--	--	--	2	1	--	--	--	1	--	--	--	--	--	--	--	--	
Clupeidae	<i>Alosa sapidissima</i>	American Shad	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	
Clupeidae	<i>Brevoortia tyrannus</i>	Atlantic Menhaden	1	30	69	--	--	--	106	156	--	--	--	157	216	--	--	55	90	21	4	13	35
Clupeidae	<i>Dorosoma cepedianum</i>	Gizzard Shad	5	1	9	--	--	--	4	4	--	--	1	24	46	--	1	--	7	2	--	2	--
Cyprinidae	<i>Cyprinus carpio</i>	Common Carp	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	1	--	--	--	--	
Cyprinidae	<i>Notropis hudsonius</i>	Spottail Shiner	39	--	--	--	--	--	5	--	--	--	--	--	--	--	--	--	--	--	--	--	
Catostomidae	<i>Carostomus commersoni</i>	White Sucker	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Ictaluridae	<i>Ameiurus nebulosus</i>	Brown Bullhead	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	
Ictaluridae	<i>Ictalurus punctatus</i>	Channel Catfish	--	--	--	--	--	--	1	1	--	--	--	5	7	--	--	--	--	1	--	1	
Esocidae	<i>Esox niger</i>	Chain pickerel	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	
Atherinidae	<i>Menidia menidia</i>	Atlantic Silverside	224	--	--	--	--	216	--	--	--	--	77	--	--	--	--	--	--	--	--	--	
Fundulidae	<i>Fundulus diaphanus</i>	Banded Killifish	--	--	--	--	--	6	--	--	--	--	19	--	--	--	--	--	--	--	--	--	
Fundulidae	<i>Fundulus heteroclitus</i>	Mummichog	--	--	--	--	--	54	--	--	--	--	15	--	--	--	--	--	--	--	--	--	
Fundulidae	<i>Fundulus majalis</i>	Striped Killifish	3	--	--	--	--	--	--	1	--	--	4	--	--	--	--	--	--	--	--	--	
Moronidae	<i>Morone americana</i>	White Perch	474	140	413	201	247	137	209	152	3	6	12	233	293	9	17	108	144	8	26	28	20
Moronidae	<i>Morone saxatilis</i>	Striped Bass	878	--	12	--	2	10	34	53	2	2	4	39	46	1	1	21	7	6	9	3	1
Centrarchidae	<i>Lepomis gibbosus</i>	Pumpkinseed	6	--	--	--	--	4	1	--	--	--	12	--	--	--	--	--	--	--	--	--	
Centrarchidae	<i>Micropterus salmoides</i>	Largemouth Bass	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Percidae	<i>Perca flavescens</i>	Yellow Perch	4	--	--	--	--	--	--	--	--	--	--	--	--	--	6	3	--	--	--	1	
Pomatomidae	<i>Pomatomus saltatrix</i>	Bluefish	--	--	1	--	--	--	--	--	--	--	--	1	2	--	--	--	3	1	1	1	
Sciaenidae	<i>Leiostomus xanthurus</i>	Spot	--	--	--	--	--	--	--	1	--	--	--	32	22	--	--	--	131	198	114	147	
Gobiidae	<i>Gobiosoma boscii</i>	Naked Goby	11	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	
Paralichthyidae	<i>Paralichthys dentatus</i>	Summer Flounder	--	--	--	--	--	--	--	--	--	1	3	--	--	--	--	--	--	--	--	--	
Portunidae	<i>Callinectes sapidus</i>	Blue Crab	--	1	2	2	--	--	--	1	1	2	--	6	1	--	1	3	1	1	1	1	

**TABLE C-3. CUMULATIVE LIST OF BENTHIC SPECIES COLLECTED BY SEASONAL DENSITY AND STATION NUMBER**  
**MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND**

ORDER	FAMILY	SCIENTIFIC NAME	SUMMER 2003				SPRING 2003		SUMMER 2004				FALL 2004		SUMMER 2005		
			M-B1	M-B2	M-B3	M-B4	M-B4	M-B5	M-B6	M-B7	M-B8	M-B9	M-B4	MSNSURF05-3	MSNSURF05-4	WBSURF05-1	
Cnidaria	--	<i>Diadumene leucolena</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Cnidaria	--	<i>Edwardsia elegans</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Turbellaria	--	<i>Turbellaria sp.</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Nemertinea	--	<i>Carinoma tremaphorus</i>	--	6.80	6.80	--	--	--	--	6.80	6.80	6.80	--	6.80	--	--	
Nemertinea	--	<i>Lineus bicolor</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	13.60	
Annelida	Polychaeta	<i>Eteone heteropoda</i>	6.80	--	--	--	13.60	--	--	--	--	6.80	--	--	13.60	6.80	
Annelida	Polychaeta	<i>Heteromastus filiformis</i>	--	--	--	--	27.20	6.60	54.40	74.80	34.00	142.80	54.40	20.40	13.60	--	
Annelida	Polychaeta	<i>Hobsonia florida</i>	--	--	--	--	6.80	--	95.20	6.80	27.20	95.20	6.80	13.60	190.40	--	
Annelida	Polychaeta	<i>Marenzelleria viridis</i>	108.80	244.80	2,386.80	--	--	61.20	149.60	95.20	244.40	108.80	--	176.80	95.20	--	
Annelida	Polychaeta	<i>Neanthes succinea</i>	6.80	40.80	68.00	--	--	--	20.40	258.40	142.80	13.60	6.80	27.20	61.20	--	
Annelida	Polychaeta	<i>Nereididae</i>	--	--	6.80	--	--	--	--	--	--	--	--	--	--	--	
Annelida	Polychaeta	<i>Polydora cornuta</i>	6.80	--	27.20	--	--	--	--	13.60	122.40	--	--	108.80	61.20	--	
Annelida	Polychaeta	<i>Streblospio benedicti</i>	2,876.40	1,033.60	292.40	333.20	1,999.20	578.00	809.20	2,046.80	2,556.80	2,026.40	693.60	3,964.40	1,550.40	3,175.60	
Annelida	Oligochaeta	<i>Tubificoides spp.</i>	707.20	1,870.00	1,346.40	1,156.00	1,978.80	--	102.00	251.60	95.20	1,210.40	163.20	448.80	741.20	367.20	
Gastropda	--	<i>Littoridinops tenuipes</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Gastropda	--	<i>Cratena pilata</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Bivalvia	--	<i>Geukensia demissa</i>	--	--	--	--	--	--	6.80	6.80	--	--	--	--	--	--	
Bivalvia	--	<i>Macoma balthica</i>	761.60	584.80	312.80	333.20	81.60	6.80	156.40	115.60	13.60	88.40	--	20.40	54.40	74.80	
Bivalvia	--	<i>Macoma mitchelli</i>	27.20	40.80	47.60	20.40	156.40	81.60	251.60	265.20	40.80	353.60	54.40	13.60	95.20	--	
Bivalvia	--	<i>Mulinia lateralis</i>	6.80	6.80	--	--	--	--	--	--	--	--	--	--	--	--	
Bivalvia	--	<i>Mya arenaria</i>	27.20	40.80	61.20	--	--	--	6.80	--	--	--	--	--	--	--	
Bivalvia	--	<i>Mytilopsis leucophaeata</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Bivalvia	--	<i>Rangia cuneata</i>	--	--	--	--	34.00	13.60	142.80	224.40	34.00	40.80	27.20	61.20	129.20	--	
Crustacea	Amphipoda	<i>Ameroculodes spp. Complex</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Crustacea	Amphipoda	<i>Apocorophium lacustre</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Crustacea	Amphipoda	<i>Gammarus daiberi</i>	--	--	--	--	--	--	--	--	--	6.80	--	--	--	--	
Crustacea	Amphipoda	<i>Leptocheirus plumulosus</i>	95.20	1,883.60	1,448.40	27.20	1,652.40	938.40	2,747.20	5,120.40	1,400.80	4,780.40	6.80	--	720.80	--	
Crustacea	Amphipoda	<i>Melita nitida</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Crustacea	Isopoda	<i>Cyathura polita</i>	6.80	40.80	516.80	6.80	--	6.80	74.80	6.80	13.60	88.40	--	--	13.60	--	
Crustacea	Isopoda	<i>Edotea triloba</i>	--	34.00	68.00	--	--	13.60	47.60	278.80	20.40	340.00	--	--	6.80	--	
Crustacea	Mysidacea	<i>Neomysis americana</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Diptera	--	<i>Chironomidae pupae</i>	--	--	--	--	--	--	--	--	--	--	--	6.80	6.80	--	
Diptera	--	<i>Chironomidae larvae</i>	6.80	--	--	6.80	6.80	6.80	--	--	--	54.40	442.00	136.00	--	--	

**TABLE C-4. CUMULATIVE LIST OF AVIAN SPECIES OBSERVED AT MASONVILLE  
MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND**

FAMILY	SCIENTIFIC NAME	COMMON NAME	MONTH AND YEAR							
			Aug-03	May-04	Jul-04	Oct-04	Feb-05	Jun-05	Aug-05	Sep-05
Gaviidae	<i>Gavia immer</i>	Common Loon		X						
Podicipedidae	<i>Podilymbus podiceps</i>	Pied-Billed Grebe							X	
Phalacrocoracidae	<i>Phalacrocorax auritus</i>	Double-crested Cormorant	X		X	X		X	X	X
Ardeidae	<i>Ardea herodias</i>	Great Blue Heron	X	X	X	X		X	X	X
Ardeidae	<i>Ardea alba</i>	Great Egret	X					X	X	X
Ardeidae	<i>Butorides virescens</i>	Green Heron	X	X	X			X	X	
Ardeidae	<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	X					X		X
Ardeidae	<i>Nyctanassa violacea</i>	Yellow-crowned Night-Heron								X
Cathartidae	<i>Coragyps atratus</i>	Black Vulture	X							
Cathartidae	<i>Cathartes aura</i>	Turkey Vulture						X		X
Anatidae	<i>Branta canadensis</i>	Canada Goose		X		X				X
Anatidae	<i>Cygnus olor</i>	Mute Swan		X	X	X				
Anatidae	<i>Anas strepera</i>	Gadwall						X		
Anatidae	<i>Anas americana</i>	American Wigeon								X
Anatidae	<i>Anas rubripes</i>	American Black Duck								X
Anatidae	<i>Anas platyrhynchos</i>	Mallard	X	X	X	X	X	X	X	X
Anatidae	<i>Anas crecca</i>	Green-winged Teal					X	X		
Anatidae	<i>Aythya valisineria</i>	Canvasback						X		
Anatidae	<i>Aythya collaris</i>	Ring-necked Duck						X		
Anatidae	<i>Aythya affinis</i>	Lesser Scaup						X	X	
Anatidae	<i>Bucephala albeola</i>	Bufflehead	X	X						
Anatidae	<i>Mergus merganser</i>	Common Merganser						X		
Anatidae	<i>Oxyura jamaicensis</i>	Ruddy Duck						X		
Accipitridae	<i>Pandion haliaetus</i>	Osprey	X					X	X	X
Accipitridae	<i>Haliaeetus leucocephalus</i>	Bald Eagle		X	X	X				X
Accipitridae	<i>Circus cyaneus</i>	Northern Harrier								X
Accipitridae	<i>Accipiter striatus</i>	Sharp-shinned Hawk								X
Accipitridae	<i>Accipiter cooperii</i>	Cooper's Hawk								X
Accipitridae	<i>Buteo lineatus</i>	Red-shouldered Hawk								X
Accipitridae	<i>Buteo jamaicensis</i>	Red-tailed Hawk					X			
Phasianidae	<i>Phasianus colchicus</i>	Ring-necked Pheasant			X			X		
Rallidae	<i>Fulica Americana</i>	American Coot					X			

**TABLE C-4. CONTINUED**  
**MASONVILLE DREDGED MATERIAL CONTAINMENT FACILITY, BALTIMORE HARBOR, MARYLAND**

FAMILY	SCIENTIFIC NAME	COMMON NAME	MONTH AND YEAR							
			Aug-03	May-04	Jul-04	Oct-04	Feb-05	Jun-05	Aug-05	Sep-05
Charadriidae	<i>Charadrius vociferous</i>	Killdeer						X	X	X
Scolopacidae	<i>Actitis macularia</i>	Spotted Sandpiper						X	X	
Scolopacidae	<i>Calidris minutilla</i>	Least Sandpiper		X						
Laridae	<i>Larus atricilla</i>	Laughing Gull	X	X	X	X				X
Laridae	<i>Larus delawarensis</i>	Ring-billed Gull					X	X	X	X
Laridae	<i>Larus argentatus</i>	Herring Gull					X	X	X	X
Laridae	<i>Larus marinus</i>	Great Black-backed Gull					X			
Laridae	<i>Larus sp.</i>	Gull sp. (juvenile)	X							
Laridae	<i>Sterna caspia</i>	Caspian Tern							X	X
Laridae	<i>Sterna hirundo</i>	Common Tern							X	
Laridae	<i>Sterna forsteri</i>	Forster's Tern	X							
Laridae	<i>Sterna antillarum</i>	Least Tern						X		
Columbidae	<i>Columba livia</i>	Rock Dove								X
Columbidae	<i>Zenaida macroura</i>	Mourning Dove							X	X
Cuculidae	<i>Coccyzus americanus</i>	Yellow-Billed Cuckoo								
Apodidae	<i>Chaetura pelagica</i>	Chimney Swift								X
Alcedinidae	<i>Ceryle alcyon</i>	Belted Kingfisher			X		X		X	X
Picidae	<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker								X
Picidae	<i>Picoides pubescens</i>	Downy Woodpecker					X	X		
Picidae	<i>Colaptes auratus</i>	Northern Flicker					X		X	X
Tyrannidae	<i>Sayornis phoebe</i>	Eastern Phoebe								X
Tyrannidae	<i>Tyrannus tyrannus</i>	Eastern Kingbird	X					X	X	
Corvidae	<i>Cyanocitta cristata</i>	Blue Jay						X		
Corvidae	<i>Corvus brachyrhynchos</i>	American Crow	X				X		X	X
Hirundinidae	<i>Tachycineta bicolor</i>	Tree Swallow		X	X					
Hirundinidae	<i>Stelgidopteryx serripennis</i>	Swallow							X	
Hirundinidae	<i>Hirundo rustica</i>	Barn Swallow	X						X	X
Paridae	<i>Baeolophus bicolor</i>	Tufted Titmouse					X			
Troglodytidae	<i>Thryothorus ludovicianus</i>	Carolina Wren					X	X	X	X
Troglodytidae	<i>Troglodytes aedon</i>	House Wren						X	X	X
Troglodytidae	<i>Cistothorus palustris</i>	Marsh Wren								X
Turdidae	<i>Turdus migratorius</i>	American Robin						X	X	

**TABLE C-4. CONTINUED**

**Table C-5. Cumulative List of Botanical Species Observed at Masonville During Seasonal Surveys Conducted from 2003 through 2004**

Scientific Name	Common Name
<i>Bidens</i> sp.	Beggar ticks species
<i>Catalpa speciosa</i>	Northern catalpa
<i>Cercis canadensis</i>	Redbud
<i>Clematis terniflora</i>	Sweet autumn clematis
<i>Eupatorium rugosum</i>	White snakeroot
<i>Hibiscus palustris</i>	Swamp rose mallow
<i>Impatiens capensis</i>	Jewelweed
<i>Iva frutescens</i>	Marsh-elder
<i>Morus alba</i>	White mulberry
<i>Myriophyllum spicatum</i>	Eurasian watermilfoil
<i>Parthenocissus quinquefolia</i>	Virginia creeper
<i>Paulownia tomentosa</i>	Royal paulownia
<i>Phragmites australis</i>	Common reed grass
<i>Phytolacca americana</i>	Pokeweed
<i>Rhus aromatica</i>	Fragrant sumac
<i>Rhus</i> sp.	Sumac species
<i>Rhus typhina</i>	Staghorn sumac
<i>Robinia pseudoacacia</i>	Black locust
<i>Rubus allegheniensis</i>	Blackberry
<i>Rumex crispus</i>	Curly dock
<i>Salix nigra</i>	Black willow
<i>Sassafras albidum</i>	Sassafras
<i>Silene noctiflora</i>	Night-flowering catchfly
<i>Toxicodendron radicans</i>	Poison ivy
<i>Ulmus rubra</i>	Slippery elm
<i>Vitis</i> sp.	Grape species

**ATTACHMENT A**

**SAV SURVEY MEMO**

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21 October 2005

**TO:** Jane Boraczek                           **LOCATION:** EA – Eastern Shore  
**FROM:** Charles Leasure                       **LOCATION:** Loveton  
**SUBJECT:** SAV Survey within Footprint of the Proposed Masonville Dredge Material Containment Facility, Middle Branch Patapsco River

EA conducted a SAV survey on 19 October 2005 at the above-referenced site. The survey was conducted along the northern shoreline of the existing Masonville Dredge Material Containment Facility, adjacent to the sunken barges (within the proposed footprint of the new facility), within the area of the shoal northeast of the sunken barges, and within the Kurt Iron Channel. The purpose of the survey was to determine whether SAV was present within the footprint of the proposed dredge material containment facility.

The survey was conducted from an open work boat. The survey was limited to areas with 7-8 feet of water, or less. Throughout the survey areas, an iron garden rake was thrown into the water and pulled across the bottom in an effort to bring to the surface any SAV that may be present. SAV presence or absence was noted without use of the rake in areas with shallow water where the bottom could be clearly observed from the boat.

## Results

One species of SAV, Eurasian watermilfoil (*Myriophyllum spicatum*), was observed within the survey area. Filamentous algae were also observed. Eurasian watermilfoil was observed floating within the survey area. The pieces of floating Eurasian watermilfoil were generally small (less than 12 inches long) and were encountered infrequently. See attached photographic record for details.

Eurasian watermilfoil was observed growing within the Kurt Iron Channel, in the shallow water along the shoreline (Figure 1). Along the western shoreline of Kurt Iron Channel, the beds of Eurasian watermilfoil were approximately 5 feet wide and extended several hundred feet along the edge. Along the southern shoreline of the channel, at the mouth of a culvert, another bed of Eurasian watermilfoil was present. The southeast corner of the Kurt Iron Channel supported the largest and densest bed of Eurasian watermilfoil within the survey area. Smaller beds were also present along the western shoreline of the Kurt Iron Channel.

The beds of Eurasian watermilfoil within the Kurt Iron Channel ranged in density from 1 to 3, based on a method developed by the U.S. Fish and Wildlife Service, adapted from the Braun-

Blanquet scale. A figure depicting the density scale is attached (Figure 2). Total coverage of SAV at the time of the survey was approximately 16,654 sq ft (0.38 acres).

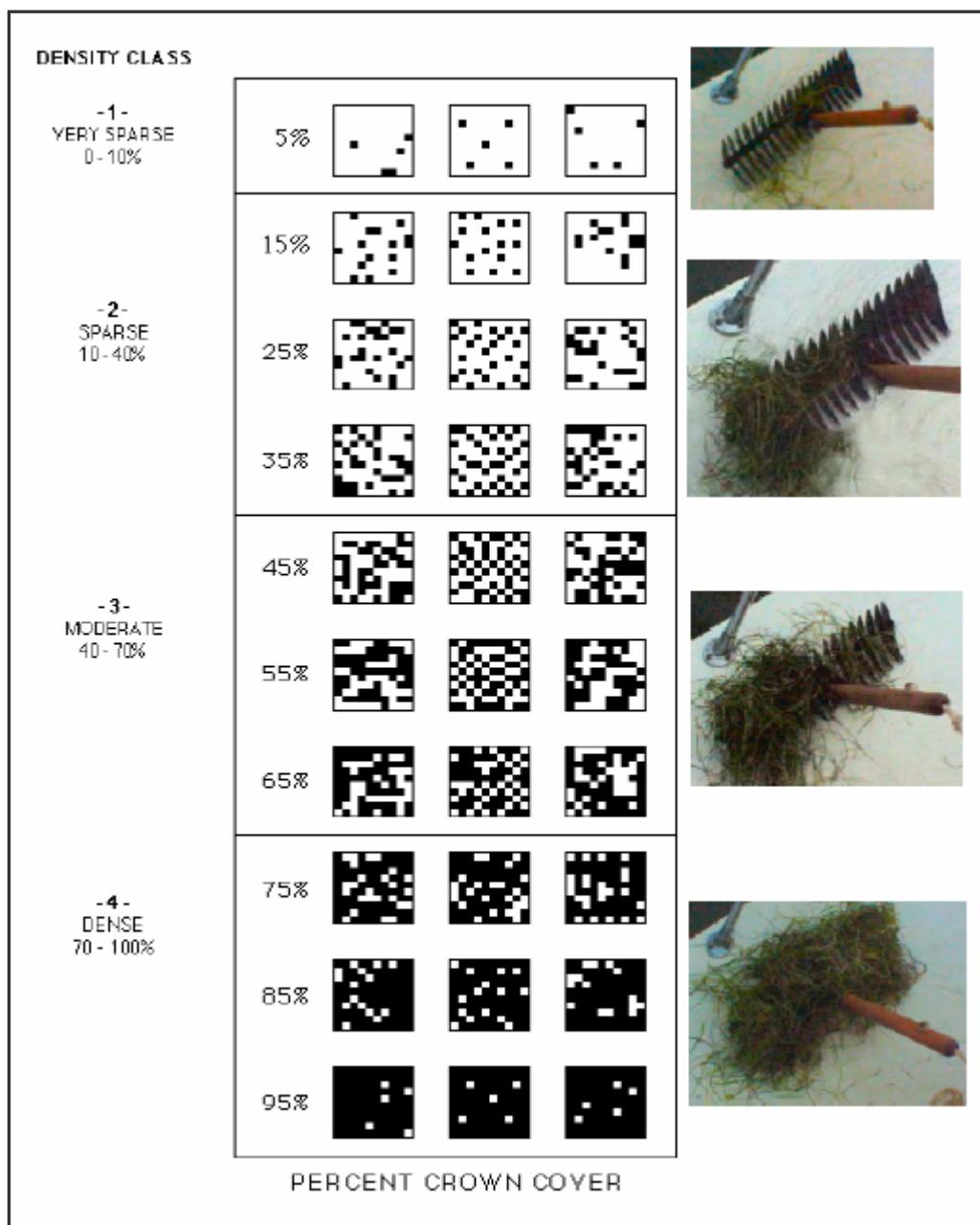
**Recommendations**

The survey was conducted at the end of the peak growing season for SAV in the region. SAV distribution, density, and composition (number of species) may be under represented by this survey due to the time of year it was conducted. If the project schedule allows, SAV surveys should be considered for the 2006 growing season.

Discussions with the relevant resource agencies should continue in regard to permit application and mitigation requirements. The SAV observed to be growing within the project footprint during this survey was confined to the shorelines of the Kurt Iron Channel. The sediment sampling results for the Kurt Iron Channel have demonstrated that this portion of the project footprint contains some of the most contaminated sediments.



**Figure 1. Location of Observed SAV in Kurt Iron Channel at Masonville During the October 2005 Survey**



*Source: U.S. Fish and Wildlife Service, adapted from Braun-Blanquet scale used to rate SAV density through rake throws, adapted from VIMS website.*

**Figure 2. Density Classification of Collected SAV**

# Photographic Record

**Masonville Dredged Material Containment Facility**  
**Baltimore Harbor, Maryland**  
**Submerged Aquatic Vegetation Survey (October 2005)**



Rooted Eurasian watermilfoil  
(*Myriophyllum spicatum*)



Eurasian watermilfoil observed along  
banks of Kurt Iron channel



Eurasian watermilfoil observed in  
shallow areas of Kurt Iron channel



Eurasian watermilfoil observed in  
shallow areas of Kurt Iron channel



Eurasian watermilfoil observed in Kurt  
Iron channel



Rooted Eurasian watermilfoil

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## **ATTACHMENT B**

# **BALTIMORE HARBOR FISHERIES STUDIES PRESENTATION (2003 – 2005)**

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# 2003-2005 Baltimore Harbor Fisheries Studies



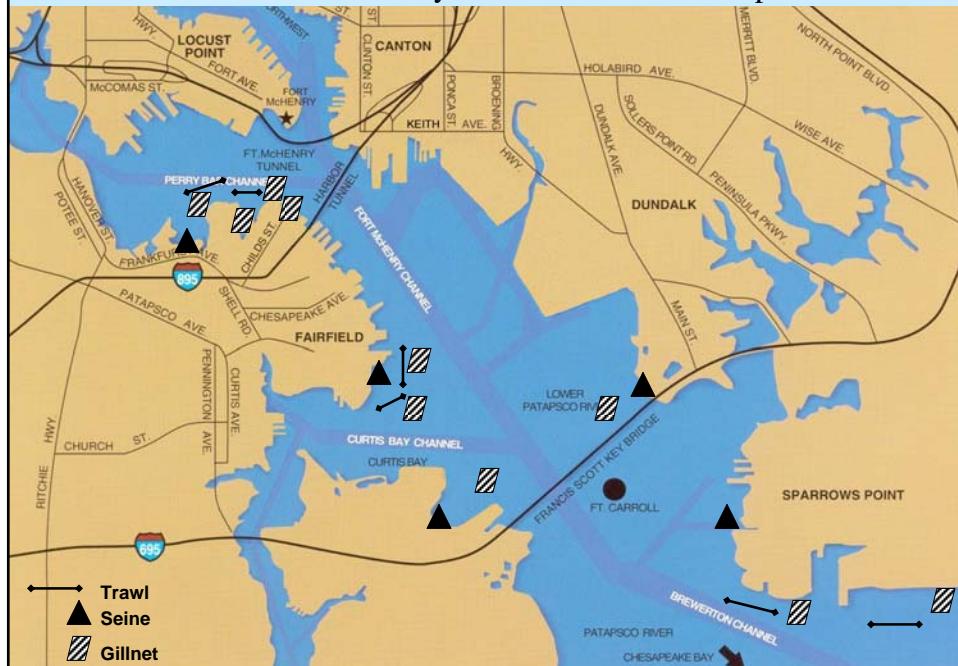
Maryland  
Port  
Administration

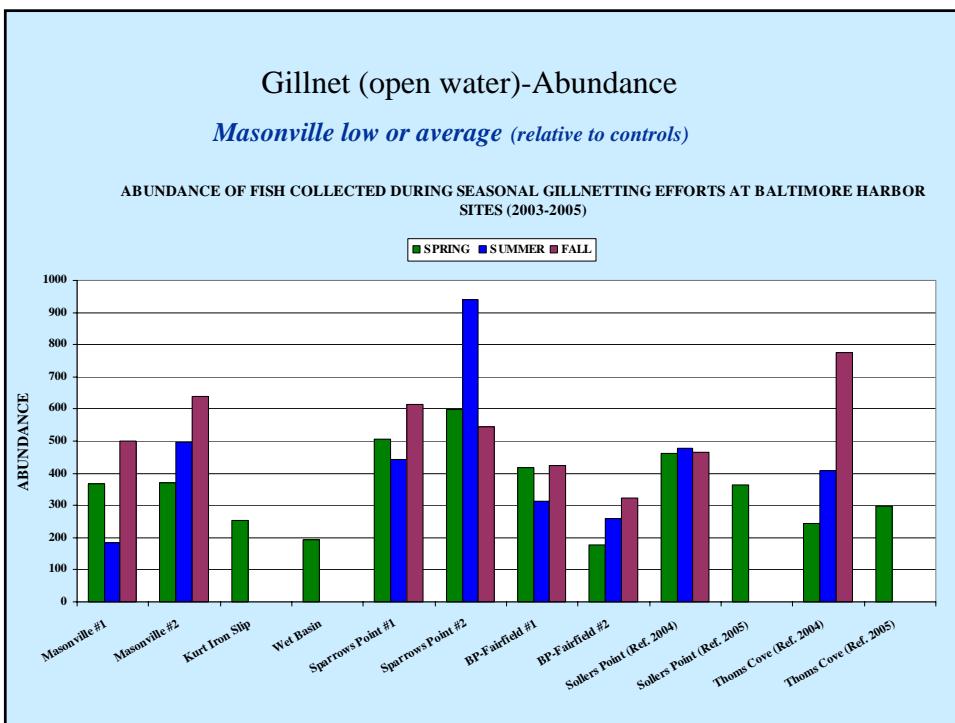
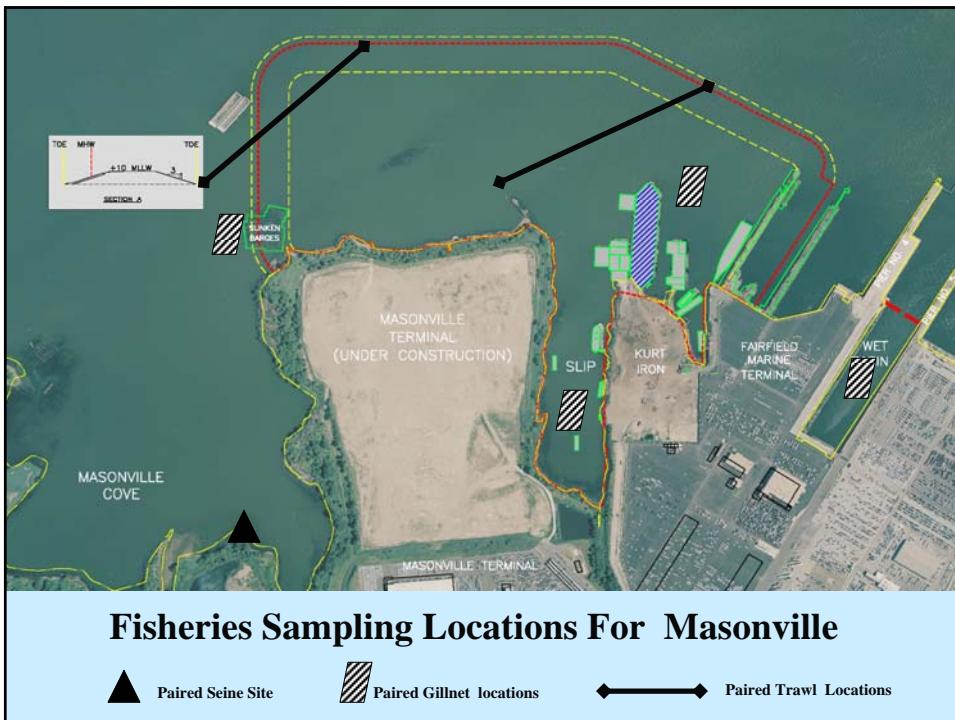


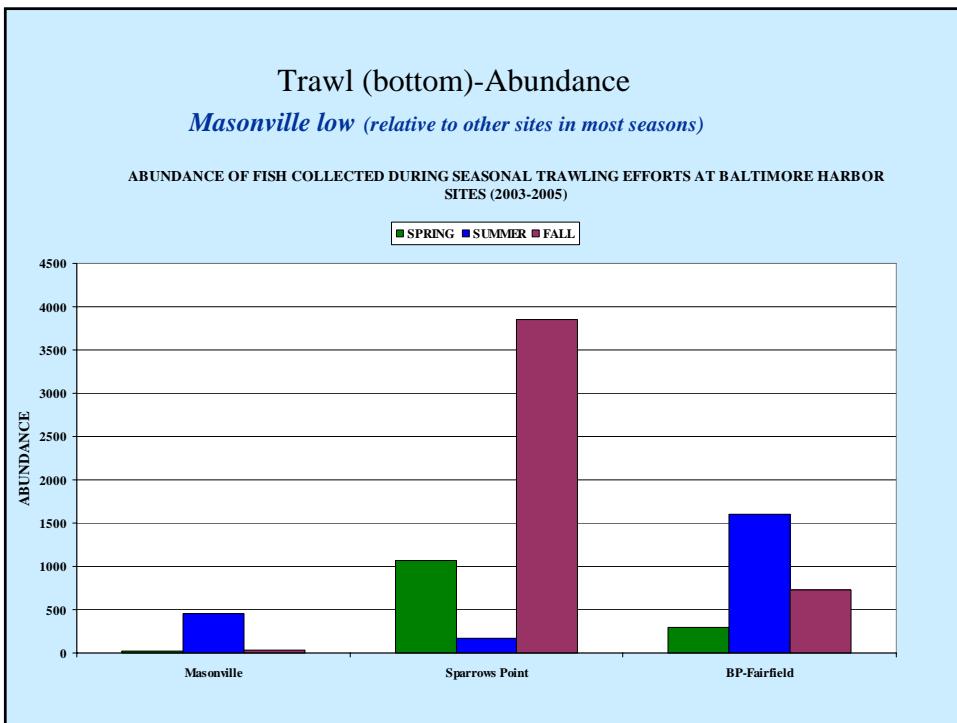
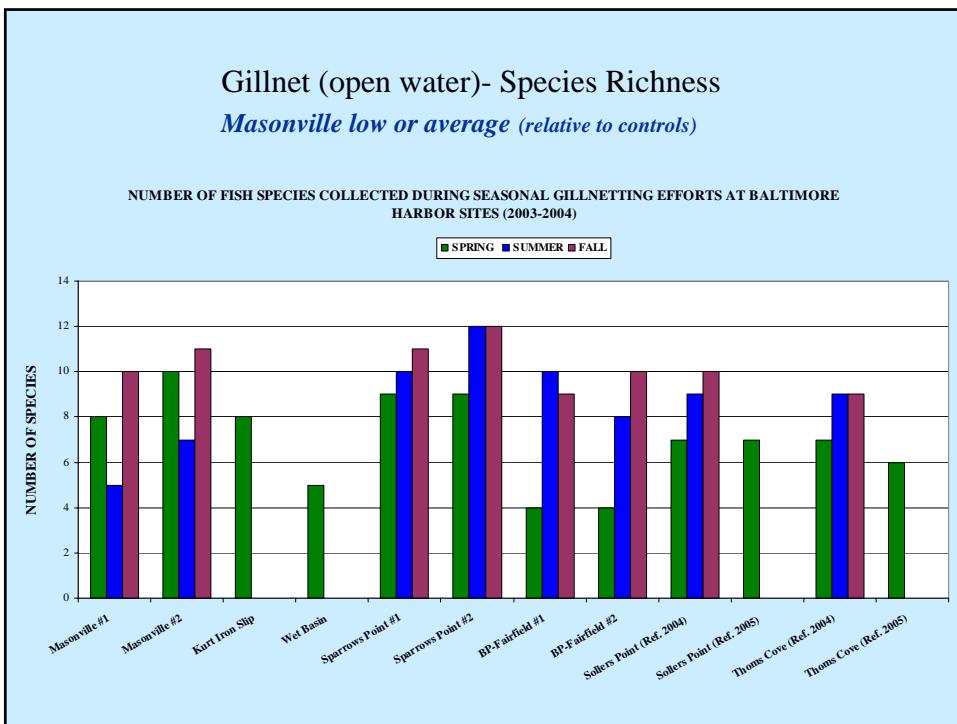
EA Engineering,  
Science, and  
Technology, Inc

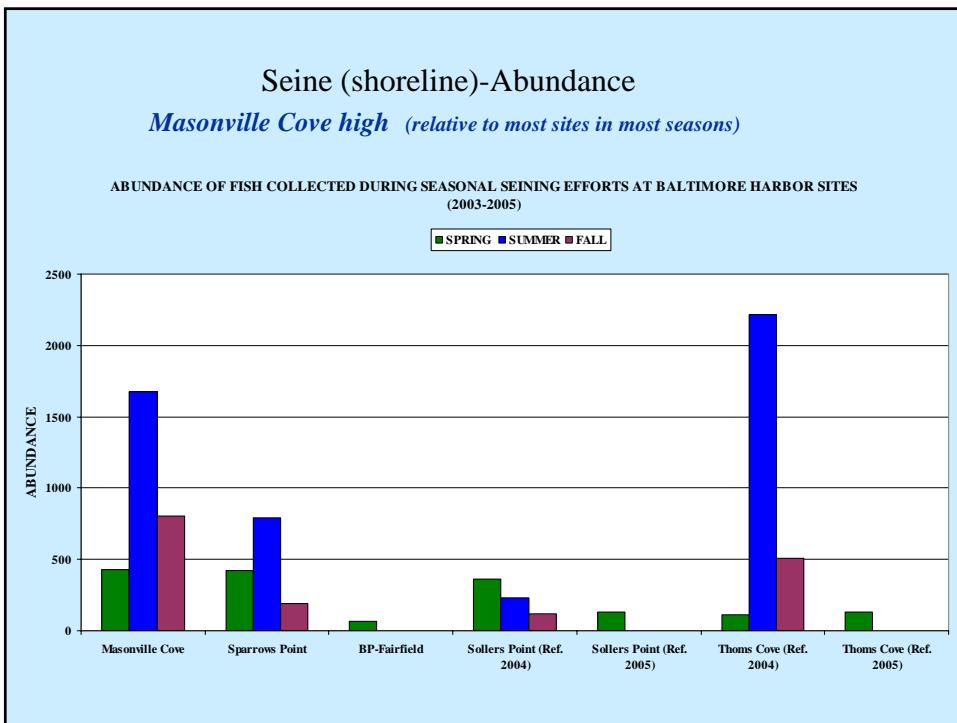
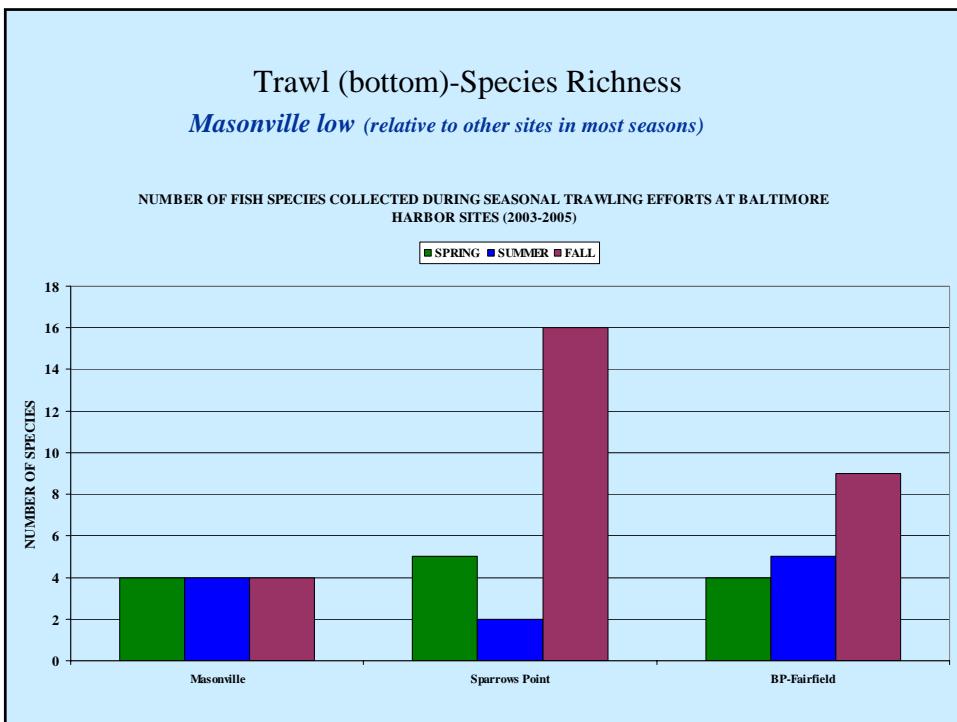
1. Masonville
2. Sparrows Point
3. BP-Fairfield
4. Thoms Cove (reference)
5. Sollers Point (reference)

Fisheries Stations for Study of Harbor Placement Options





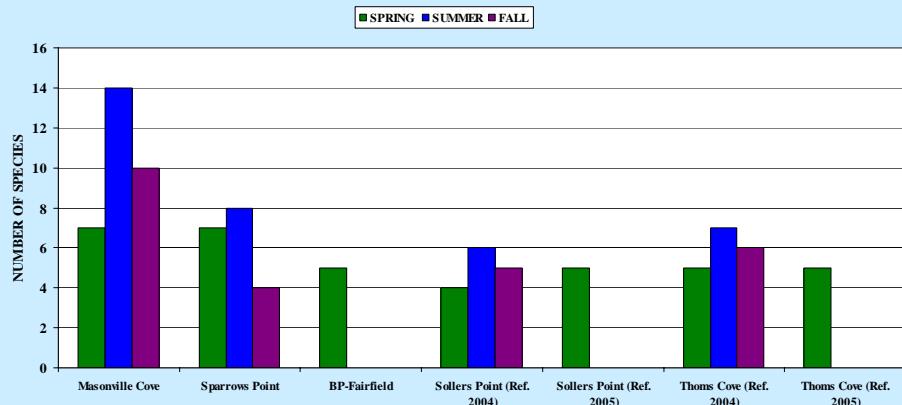




## Seine (shoreline)-Species Richness

*Masonville Cove high (relative to most sites in most seasons)*

NUMBER OF FISH SPECIES COLLECTED DURING SEASONAL SEINING EFFORTS AT  
BALTIMORE HARBOR SITES (2003-2005)



*fin*



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